

$$\textcircled{37} \mu_S = 1.5 \quad \mu_L = 2.5$$

$$\sigma_S = 0.3 \quad \sigma_L = 0.4$$

$$\textcircled{a} \mu_{L-S} = 2.5 - 1.5 = \textcircled{1.0z}$$

$$\textcircled{b} \sigma_{L-S} = \sqrt{\sigma_L^2 + \sigma_S^2} = \sqrt{(0.3^2) + (0.4^2)}$$

$$= \textcircled{0.5\sigma z.}$$

\textcircled{c} NORMAL

$$P(\underset{-s}{S} > \underset{-s}{L})$$

$$P(0 > L-S) = P(L-S < 0) = \text{normcdf}(-\infty, 0, 1, 0.5)$$

$$0.02275$$

$$\textcircled{a} \mu_{L+S} = 1.5 + 2.5 = 4.0\sigma$$

$$\sigma_{L+S} = \sigma_{L-S} = 0.5\sigma$$

\textcircled{e} normal

$$P(L+S > 4.5)$$

$$\text{normalcdf}(4.5, \text{E99}, 4, 0.5)$$

$$= 0.15866$$

$$\textcircled{40} \quad \mu_D = 100 \quad \mu_C = 120$$

$$\sigma_D = 30 \quad \sigma_C = 35$$

$$\textcircled{a} \quad \begin{array}{l} D = \text{dog} \\ C = \text{cat} \end{array} \quad \text{total} = D + D + C$$

$$\textcircled{b} \quad \mu_{D+D+C} = \$320$$

$$\sigma_{D+D+C} = \sqrt{\sigma_D^2 + \sigma_D^2 + \sigma_C^2}$$

$$\sqrt{30^2 + 30^2 + 35^2}$$

$$\boxed{N(320, 55)} = \$55$$

$$c) P(D+D+C > 400)$$

$$\text{normcdf}(400, \text{€}99, 320, 55)$$

$$= 0.0729$$